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ABSTRACT

Wichita State's physician's assistant program, located on the Wichita Veteran's Administration Center campus in Wichita, Kansas, is described in this status report. Established with 12 students in January 1973, the program includes didactic and clinical training for two years and meets the "Essentials of an Approved Educational Program for the Assistant to the Primary Care Physician" of the AMA Council on Medical Education. This report covers the program's funding, accreditation, legislation, curriculum including preceptorships, student information, graduate information, and detailed program evaluation. Appended are (1) didactic and clinical curriculum; (2) a sample module objective (assessment and management of the gastro-intestinal system); (3) clinical rotations; and (4) composite profiles of classes from 1973 through 1977. (LBH)

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Wichita State University

Physician's Assistant Program

BHME Contract # 72-4199

FINAL REPORT

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History of the WSU Physician's Assistant Program

General Background

The need and demand for physician's assistants in Kansas was researched by Baranowski, Adair, and Brown (1972) who determined the potential need for 370 PA positions within the state. Following this report, a contract was awarded by the Bureau of Health Manpower Education of the National Institute of Health for the initiation and development of a training program for physician's assistants at Wichita State University. D. Cramer Reed, M.D., at that time Dean of the WSU College of Health Related Professions, was named Project Director; Valgene J. Valgora, a graduate of the Duke University PA Program, was appointed Program Director; and Alfred H. Hinshaw, M.D., was appointed Medical Director.

Twelve students began training in January of 1973. In August of the same year, a second class of 24 students was formed. The program has continued with an enrollment of 24 students per year which is considered optimum because of limitations on faculty time, space, equipment, and available training sites. However, in August, 1976, the program accepted 10 students from the Eastern New Mexico University Physician's Assistant Program which was rejected by the AMA for accreditation. These students, in addition to a student from New York, were tested and admitted to the program with special status. With the class thus expanded, the staff is in the process of examining the possibility of offering an advanced standing program as well as determining the advantages and disadvantages of an enlarged class size. A sixth class of 30 students will begin training in August of 1977.

Administratively, the PA Program is under the direction of the College of Health Related Professions. Dr. Reed assumed a dual role in his capacity as both Vice Chancellor of the WSU Branch of the Kansas University School of Medicine and as the Vice President for Health Education at Wichita State University.

Originally, the WSU/PA Program was designed as a certificate program and did not offer university credit. However, in the Spring of 1974, the program received approval to grant course credit for work completed by students. All students currently earn 83 hours of credit during their two year training. In the Fall of 1974, the PA curriculum was approved for the Bachelor of Health Science Degree with major in Physician's Assistant. This degree is optional for students who have completed all professional program requirements and meet university core curriculum guidelines. Students still have the option of receiving only the certificate.

The Program is located on the Wichita Veteran's Administration Center campus in Wichita, Kansas. The building in which the program is housed was recently completely renovated and modernized by the Veteran's Administration at a cost of approximately $300,000. The association with a hospital allows the use of the facility for teaching and patient care experiences. In addition to the support of PA training programs, the Veteran's Administration nationally has been a leader in the employment of graduate physician's assistants.

Since the Program's inception, new faculty positions have been added to the original three administrative positions. In 1973, an educator joined the staff

as evaluator and educational coordinator on a part-time basis. In the Summer of 1974, a full time educational coordinator was added. The current administrative and permanent teaching staff includes the following positions: Medical Director, Program Director, Assistant Program Director, Clinical Coordinator, Program Coordinator, and an M.D. Instructor. Dr. Gladhart is currently in the position of Acting Director because of the resignation of Mr. Valgora.

Since a medical school was not available in Wichita, the program developers could not adopt the curriculum of one of the PA programs associated with a medical center. Schools associated with medical centers have the option of combining PA and medical student instruction by utilizing existing medical school faculty. The curriculum which evolved at WSU was based on a modular or block design with the integration of the basic sciences. The curriculum was decentralized with respect to the utilization of practicing physicians as instructors. (A more detailed description of the curriculum is included elsewhere in this report.)

Since this was a developing program, the staff treated the funding contract as a guideline for implementation of the curriculum. Included in the contract is a section entitled "scope of work". The following items were considered goals or guidelines around which the program was initiated and developed:

1. Implement a training program to enroll at least ten students by January 1, 1973.
2. Assure that the total program, including didactic and clinical training, is two years in length and meets the "Essentials of an Approved Educational Program for the Assistant to the Primary Care Physician" of the AMA Council on Medical Education (AMA Essentials, 1971).
3. Conduct the recruitment of students in such a manner as to assure that the majority of students will have had previous medical experience or training, or will be a member of disadvantaged or minority groups, women, or residents of medically underserved areas.
4. Develop methods through which students may earn appropriate academic degrees.
5. Establish most preceptorships in primary care practices in rural or inner-city areas.

These objectives have been realized as reported in this document.

Funding

The WSU Physician's Assistant Program came into existence September 30, 1972, as the result of the Bureau of Health Manpower Education of the National Institute of Health awarding contract No. 72-4199 to Wichita State University. The original contract awarded WSU $144,298.00 for the purpose of developing a Physician's Assistant Program. One of the terms of the contract included increasing state support over the 5-year period with a decrease each year in federal funding. The timetable of funding was as follows:

Fiscal Year	Financial Support	
	BHME	State
73-74	100%	-
74-75	75%	25%
75-76	50%	50%
76-77	25%	75%
77-78	-	100%

The State of Kansas approved a budget of $168,170.00 for fiscal year 1977-78 under which the Program will continue to operate.

Accreditation

The WSU/PA Program received provisional approval from the American Medical Association in 1973 pending graduation of the forst class of students. The program was again evaluated in June of 1975, after the first class of students had graduated, and at that time received a full three year approval from the AMA.

Legislation

One of the most important factors in the survival of any PA Program and of the concept itself is in the area of legislation.

Fortunately, Kansas has been a progressive state in the area of legislation and funding for the WSU Program. Current Kansas laws are delegatory with provision for registration.

Because of recent concerns over legislation for PA's in Kansas, an Interim Committee was formed to study the needs and requirements of PA's and the state. Hearings will be held through November of 1977 with the resulting recommendations being introduced into the 1977-78 Legislative session in the form of new laws. The Committee has requested assistance from the staff, students, and graduates of the WSU Program as both an information source and in an advisory role.

Didactic Curriculum

The didactic curriculum refers to the first eleven months of training at the WSU/PA Program. This phase of education is basically academic rather than clinical in nature with emphasis in the basic sciences and medicine.

The basic science curriculum at WSU includes anatomy, physiology, pathophysiology, pharmacology, radiology, and medical technology.

The above courses, with the exception of radiology and medical technology are offered through the recently developed Health Science Department at the College of Health Related Professions. Instructors in the areas mentioned are utilized by all of the professional programs at the college.

In addition, modular courses in medicine are designed to integrate the basic sciences and clinical medicine. Course modules are based on a vertical block system in which material to be learned is grouped logically around an

organ, a group of diseases, a system, a region, a specialty, or an historically effective grouping (e.g., Obstetrics-Gynecology).

In the development of the various modules, the traditional courses are disregarded and the essential portions are applied to the appropriate module or modules. In each module, the applicable basic Anatomy and Physiology are covered to give rational understanding to the evaluation, pathology, and management components. Emphasis is placed on evaluation (history, physical, laboratory, diagnostic x-ray, special procedures and maneuvers), and clinical medicine (the common diseases, assessment, and formulation of a plan for management). When applicable, clinical surgery (resources and management vis-a-vis technical procedures), special problems of children, special problems of the geriatric patient, emergencies (recognition and management), pharmacology, rehabilitation, special management problems, public health and epidemiology, medical social work problems, and resources, through voluntary agencies are also considered. The complete didactic curriculum is included in Appendix A.

Instructors for modules are practicing physicians in family practice and other specialty areas. Over one hundred physicians participate to varying degrees in the instructional program. Physicians who are recognized as authorities in a particular area are appointed to serve as consultant-advisors for each module. Their input, plus the feedback of physician-instructors, has molded the current curriculum.

During the early months of the program, the module advisors along with program faculty developed objectives for each module included in the didactic year. In developing the objectives, the module advisors and program staff used the phrase "should know" as the criterion as to what should be taught under any objective.

In determining this, the program turned first to the major objective of training Physician's Assistants for the Primary Care Physician working in a medically underserved area. And, for the basic science portions, "should know" became that which would give a rational understanding to normals, normal variations, and common pathology encountered rather than depending on empirical teaching. It was also believed that the "should know" would better enable the Physician's Assistant to keep abreast with the advancements in health science and care as these change. Initially, the "should know" was determined from a montage of experiences of the staff, review of curricula of other programs, invited input (mostly informal), some knowledge of nurse practitioner programs, consultations with the consultant advisors, task force inventories, etc. A sample of modular objectives is included in Appendix B.

Didactic Evaluation

Evaluation of the didactic phase has the following components:

1. Module Advisors - A physician specialist is assigned to each module and is given faculty status with the program. The module advisor is responsible for reviewing the module curriculum and suggesting changes in topics, instructional personnel, module format, objectives, and evaluation procedure. Module advisors are also responsible for student testing and coordination of related basic sciences.

2. Student evaluation - Students complete an evaluation form for each module. This process provides both the program staff and module advisors with feedback regarding the module from the student point of view.

3. Testing - Students are tested at the conclusion of each module. The module advisors and participating physicians are responsible for up-grading the tests on a continuous basis. The program maintains a pool of questions for each module which are based on objectives for the module. Specific objectives have been developed for each module to guide in the planning, instruction, and evaluation of the course. The objectives are reviewed and modified on a yearly basis.

4. Evaluation of practical skills - In addition to a written examination, students are also tested on clinical application of skills learned during the module. Patient examinations, models, and case studies are most often used for the aspect of the evaluation.

5. Evaluation of basic science courses (Anatomy, Physiology and Pharmacology) - Courses taught by the University Health Science Department are subject to the evaluation policies of that department. Module objectives and lectures are reviewed with each basic science instructor. Meetings are arranged so that each health science instructor may consult with module advisors regarding instructional emphasis needed. The PA staff is kept informed of the progress of students in the health science courses.

Advanced Standing Program

Eleven candidates have been admitted to the WSU Physician's Assistant Program under a newly designed procedure for advanced standing. The following will outline the qualifications of these students and explain the procedure for their completion of the educational requirements of the program.

It is the philosophy of the WSU Program that the educational process should be flexible enough to include the special interests and needs of the student. At the same time it is absolutely necessary that the educational standards and integrity of the professional program be maintained. Of course, the major concern is for the future patient who must be guaranteed quality care.

Establishing Acceptance Criteria

Application Information - Applicants requesting acceptance for Advanced Standing must complete the following requirements:

A. A bachelor's degree from an accredited college or university, or three years experience in the health field with a minimum of two years direct patient contact.

B. The applicant may be considered for an equivalent combination of the above experience and education requirements.

C. Prospective students must have college credit in the following courses:

1. College Algebra
2. College Chemistry
3. Human Anatomy and Physiology

Students lacking course work in the above areas must complete the courses before the Program starting date.

D. Documentation of high school graduation.

E. Transcripts of all college work.

F. Acceptance by Wichita State University Admissions Office.

G. Completed physician's assistant application form.

H. Three evaluation references.

I. A narrative describing applicant's desire to become a physician's assistant.

J. Military school and discharge papers (DD-214).

K. Copies of ACT or SAT scores.

L. Application fee.

M. The applicant must submit records and information supporting his request for Advanced Standing. Specific information required will depend on the individual student but may include the following:

1. Evidence of Superior Educational Achievement.
2. Confidential Recommendations from supervising physicians.
3. Course descriptions and/or other evidence of equivalency with the WSU Physician's Assistant Program curriculum.
4. Additional evidence of completed educational programs relating to the applicants request.

Equivalency/Competency Testing

The Program has developed tests which measure the applicant's competency in specific areas which are equivalent to courses in the WSU P.A. Program. The tests have been norm-referenced to a group of 36 WSU P.A. graduates who completed the tests for University credit in the summer of 1976. The data from this reference group allows the assignment of minimum competency levels and a breakdown into grade levels. The tests included in this battery are as follows:

A. Dermatology
B. Cardiovascular
C. Pulmonary
D. Gastro-Intestinal
E. Nephrology
F. Genito-Urinary
G. Obstetrics-Gynecology
H. Eye
I. Ear, Nose, Throat
J. Neurology
K. Musculo-Skeletal
L. Endocrine
M. National Board Exam equivalency test (Health Care Concepts test)

The above tests may be, under present University guidelines, taken for credit with the assignment of A, B, or C grades. Applicants accepted to the Program with

Advanced Standing are required to pay a 7.00/credit hour fee and tests completed with a C or better grade are posted on their WSU transcript. Consequently, all students regardless of Advanced Standing, will have a complete record of the Program curriculum on the transcript to ensure that all students meet Program requirements quality for the W.S.U. Health Science degree.

Pre-Admission Interview

After all application materials are reviewed by the Educational Coordinator or Assistant Director, the Program faculty will determine whether the applicant meets the requirements for consideration as an Advanced Student. With the agreement of the faculty, the applicant is scheduled for a personal interview with the Program Director, Assistant Director, Clinical Coordinator and Program Coordinator.

The purpose of the interview is to determine the applicant's desire to attend the Program and assess the personal characteristics of the applicant. The applicant must also complete a psychological inventory and perform a physical examination which is scored to National Board standards.

Acceptance of an Applicant for Advanced Standing

If the applicant has successfully completed the application process and the Program faculty approves the acceptance of the applicant, he/she is offered a position and is informed of required courses or clinical rotations which must be completed before graduation from the Program. Depending on the background of the applicant, this may require attendance at the Program for from six months to two years to complete requirements.

Research and Follow-up

The Program believes the status of students with Advanced Standing should be closely researched to insure competency and for evaluation purposes. Students on rotation will be visited by the Clinical Coordinator during each rotation. Didactic students will meet all module requirements and participate in related activities.

Degree and Certification Requirements

Students with Advanced Standing will be qualified at the termination of their training to receive a Certificate of Graduation from the Program. Those students meeting University Graduation requirements will receive the Bachelor of Health Science Degree-Physician's Assistant.

Ten students from Eastern New Mexico University at Portales, N.M., were accepted in the Fall of 1976. Six students began their didactic studies and will complete the total two year program for certification. Four students from New Mexico and one student from New York accepted advanced standing status and will follow a schedule with a mixture of didactic and clinical work.

The Eastern New Mexico Program was faced with a serious problem as a result of the A.M.A.'s denial of their application for accreditation. As a result of the A.M.A. action, the students were left with no choice but to seek help from Accredited P.A. schools if they were to qualify for National Board exams and work as a P.A. The student from New York had been working on a specialized degree from an Eastern university but had no means of gaining certification as a P.A. and thus would also not be eligible to sit at the National Board Exams.

Several factors entered into the decision to admit eleven students on an advanced standing basis. First, the W.S.U. Program has developed a testing program and admission policy for students with advanced standing. It appears that other programs have not developed such a policy or were unable to take additional students at this time. Secondly, the students represented a valuable resource to the medical field which would be wasted if they were not allowed to continue their studies. The students were motivated to continue their studies to develop the skills necessary to work as qualified Physician's Assistants. With their education as their primary concern, all students admitted were willing to discuss their weaknesses and help the W.S.U. faculty design a course of study which will insure a continuation of the high standards of the W.S.U. Program.

Another related factor is the opportunity for the Program to validate the competency examination process and study a group of students in an advanced program. These students will be carefully evaluated and compared with regular students. This field testing of the advanced standing policy is important before it can be applied to other applicants who may request advanced standing with training in other professional programs (nursing, medical technology, etc.).

Clinical Curriculum

The clinical curriculum refers to the last thirteen months of PA training. In this phase, students are assigned to clinical rotations, most of which are six weeks long. During the rotation period students are under the supervision of a physician who has responsibility for teaching the student the techniques of his specialty in the field setting. Appendix C contains a list of all rotations currently being utilized by the WSU/PA Program.

During clinical training, the student applies classroom knowledge to the care of patients in a variety of settings. The complete clinical curriculum is included in Appendix A.

Preceptorship

Preceptorship is a term which identifies the assignment of a student to a teacher or instructor. In medical education, the preceptorship can be confusing because of variations between programs. Some programs designate any clinical teaching experience as a preceptorship. The preceptorship in other programs may indicate the primary teacher-student relationship with other terms for secondary learning experiences.

In the WSU/PA Program, students have eight six-week rotations in various specialty fields and finish their training with an eight-week preceptorship. In this context, the preceptorship acts as a pre-employment rotation where students and prospective employers can work together on a trial basis. In the majority of cases, the students select their own preceptors with the understanding that no obligation exists on the part of the preceptor to employ the student after graduation.

The philosophy of decentralized clinical training at the WSU Program developed from two areas of concern. Since one of the major objectives of the program was to provide personnel to alleviate the health care short in rural and underserved areas, the staff felt that students could better learn the practice of medicine in a setting similar to that in which they would later be employed.

Secondly, in order for the first graduates to be accepted in rural areas, the Program realized contact should be made early in training. Not only was initial contact important for recognition in the state, but continued exposure to students and graduates would solidly implant the concept in the rural and underserved areas.

These objectives have clearly been met upon examination of rotational and graduate data.

Clinical Evaluation

Current evaluation of the clinical educational program is as follows:

1. Physician evaluation of students. Physicians complete an evaluation form for each student at the end of each rotation. The student is evaluated on a Likert scale from poor to excellent in categories ranging from professional relationships to medical knowledge. Physicians are also asked to suggest a letter grade for the student which is based on the results of the evaluation.

2. Student evaluation of clinical experiences. Students are required to evaluate physician instructors and the quality of learning experiences for each rotation. Students also complete a Disease Process Form which identifies the frequency of patient problems encountered by the student during the six-week rotation.

3. Clinical Coordinator site visit of rotation sities. The Clinical Coordinator is responsible for visiting rotations on a periodic basis to evaluate the adequacy of clinical training and discuss student problems.

Student Information

Program Admissions

The WSU Physician's Assistant Program admits one class of students at the beginning of the W.S.U. Fall semester of each year. Because of the academic and clinical nature of the professional studies, the Program faculty has formulated the following pre-requisites for entrance into the Program:

A. A bachelor's degree from an accredited college or university, or three years experience in the health care field with a minimum of two years direct patient contact.

B. The applicant may be considered for an equivalent combination of the above experience and education requirements.

C. Prospective students must have college credit in the following courses:

1. College Algebra
2. College Chemistry
3. Human Anatomy and Physiology

Students lacking course work in the above areas must complete the courses before the Program starting date.

At this time the Program is granting interviews to any applicant who meets the Program prerequisite and supplies the following additional information:

A. Documentation of high school graduation
B. Transcripts of all college work
C. Acceptance by Wichita State University Admissions Office
D. Completed physician's assistant application form
E. Three evaluation references
F. A narrative describing applicant's desire to become a physician's assistant
G. Military school and discharge papers (DD-214)
H. Copies of ACT or SAT scores
I. Application fee

Preliminary Interview

All applicants with completed folders are given an interview with the Program faculty. Because of the number of applicants involved, the Preliminary Interviews take about four weeks to complete. The W.S.U./P.A. faculty feels that the time spent in personal interviews is worthwhile because of the difficulty of making judgments based totally on the applicants' appearance on paper. The applicants spend one day at the Program according to the following schedule:

9:00 - 10:00	Introduction and orientation
10:00 - 12:00	Testing
1:00 - 4:00	Interviews

The applicant is interviewed by four faculty members with 15 minutes time allotted for each interview. Faculty members are provided with a Summary Sheet of the information in the applicant's folder. At the end of the day, the faculty members meet to discuss the applicants and provide further information on particular applicants if needed. No attempt at consensus is made, nor are faculty persuaded to change their opinions or rating of the applicants.

After all applicants have been interviewed, each faculty member is asked to rank every applicant from most desirable to deast desirable. Scores from all four lists are averaged and the top fifty applicants are asked to return for the interview with the Selection Committe.

Final Selection

If possible, the date of Final Selection is set before the first of April. The Selection Committee is staffed by physicians and graduate PA's from the Wichita area who have had involvement in the P.A. Program either as an instructor, preceptor, or student. The Committee meets on a Saturday and Sunday afternoon and questions each applicant for a minimum of 10 minutes. Committee members are provided a Summary Sheet of the material in the applicant's folder. The task of the Committee is to determine which 24 students will be admitted into the Program and to select six alternates. All applicants are notified by letter of the Committee's decision. The top 24 students are asked to accept or reject their seat in the class.

As of June 30, 1977, 59 students have graduated from the WSU/PA Program. The Program anticipates graduation of an additional 29 students by January of 1978.

A fifth class of 30 students will begin their clinical phase of training in July of 1977 and a sixth class of students are scheduled to begin didactic training in August of 1977.

Composite Profiles containing information on education, health care experience, age, sec, etc. for each class can be found in Appendix D.

Graduate Information

The following outline presents some of the important information regarding graduates of the Physician's Assistant Program at Wichita State University. The Program is still in the process of gathering data from graduates and updating the information. The last graduating class has not been surveyed because they have not been in the field for a six month period. Six months is allowed so the graduate can gain a more complete understanding of the practice setting and the community in which he is working. The tables which follow represent a small part of the total graduate data collected but are judged to be the most significant and relevant to this report.

1. Evidence indicates that graduates who were residents of Kansas are more likely to seek employment in rural areas than are graduates who were non-residents before entering the program. (See Table 1)

2. There is a highly significant relationship between the urban or rural background of the graduate before taining and the choice of urban and rural employment after graduation. (See Table 2).

3. Almost 75% of the WSU P.A. graduates are employed in rural areas. (See Table 3)

4. The majority of the graduates are employed in solo and partnership practices. (See Table 4)

5. A majority of the minority graduates are employed in institutional and multi-specialty group settings. (See Table 5)

6. The greatest number of PA's are employed by physicians in the 36-45 age bracket. However, the salaries paid to PA's are higher in the under 36 physician age bracket. (See Table 6)

7. The largest percentage of male graduates work in solo practice settings while female graduates are likely to work in a partnership setting. (See Table 7)

8. 76% of the total graduate population are working for Family Practice physicians. (See Table 8)

9. Salaries paid to PA's are listed in Tables 9 and 10. Overall average salary was $16,477. Salary paid to male graduates is significantly higher than the salaries paid to female graduates.

10. PA salaries are compared by specialty of the employing physician in Table 11. Family Practice reports the highest average salary.

11. Although the sample size is small, PA's working in multi-specialty groups report the highest average salary. (See Table 12)

12. Graduates have reported very good acceptance of their role by patients. Table 13 identifies patient behaviors as perceived by the PA.

Table 1

The Relationship Between the Resident Status of PA Graduates and Employment in Urban and Rural Areas

	Graduate Employment		
PA Background	Urban	Rural	Total N
State Resident	(19) 31.7%	(41) 68.3%	60
Non-Resident	(4) 40.0%	(6) 60.0%	10
Total N	23	47	70

Table 2

The Relationship Between the Geographic Background of PA Graduates and Employment in Urban and Rural Areas

	Graduate Employment		
PA Background	Urban	Rural	Total N
Urban	(18) 41.9%	(25) 58.1%	43
Rural	(5) 19.2%	(21) 80.8%	26
Total N	23	46	69

Table 3

Graduate PA's Employed in Urban and Rural Areas

Size of Community	Percent	N
Less than 2,000	17.02	8
2,000 - 5,000	36.17	17
5,000 - 10,000	8.51	4
10,000 - 25,000	10.64	5
25,000 - 50,000	2.13	1
50,000 - 100,000	-	-
Over 100,000	25.53	12

Table 4

Practices in Which PA's Are Employed

Practice Setting	Percent	N
Solo	40.43	19
Partnership	23.40	11
Group - Single Specialty	14.89	7
Group - Multi-specialty	8.51	4
Institutional	12.77	6

Table 5

Practice Settings of Minority PA Graduates

Practice Setting	Percentage	Frequency
Solo	12.5	1
Partnership	-	-
Group - Single Specialty	-	-
Group - Multi-specialty	37.5	3
Institution	50.0	4

Table 6

Physician Age as a Factor in PA Employment

Physician Age	Percent of PA's Employed	PA Average Salary	N
Under 36	20%	$17,488	9
36 - 45	35.5%	16,662	16
46 - 55	26.7%	16,333	12
56 - 65	17.8%	15,875	8
66 - 75	-	-	-
Over 75	-	--	-

Table 7

Practice Setting For Male and Female PA's

Practice Setting	PA Sex					
	Male		Female		Total	
	N	%	N	%	N	%
Solo	15	45.5	4	28.6	19	40.4
Partnership	5	15.2	6	42.9	11	23.4
Group - Single Specialty	4	12.1	2	14.3	6	12.8
Group - Multi-specialty	4	12.1	-	-	4	8.5
Institutional	55	15.2	2	14.3	7	14.9

Table 8

Specialty of Employing Physicians for Male and Female Graduate PA's

Physician Specialty	PA Sex					
	Male		Female		Total	
	N	5%	N	%	N	%
Family Practice	27	81.8	9	64.3	36	76.6
Internal Medicine	1	3.0	4	28.6	5	10.6
Surgery	3	9.1	-	-	3	6.4
Other	2	6.1	1	7.1	3	6.4

Table 9

Salaries of WSU Graduate PA's

Salary	N	Percent
10,000 - 12,000	4	8.70
12,000 - 14,000	6	12.04
14,000 - 16,000	11	23.91
16,000 - 18,000	10	21.74
18,000 - 20,000	5	10.87
Over 20,000	7	15.22
No response	3	6.52

Table 10

Salaries for Male and Female PA's

Salary	PA Sex					
	Male		Female		Total	
	N	%	N	%	N	%
10,000 - 12,000	2	6.1	2	15.4	4	8.7
12,000 - 14,000	3	9.1	3	23.1	6	13.0
14,000 - 16,000	7	21.2	4	30.8	11	23.9
16,000 - 18,000	9	27.3	1	7.7	10	21.7
18,000 - 20,000	4	12.1	2	-	6	-
Over 20,000	7	21.2	-	-	7	15.2
No Response	1	3.0	2	15.4	3	6.5
Average Salary	17,156		14,666		16,477	

Table 11

PA Salaries By Specialty of Employing Physician

Specialty	Average Salary	N
Family Practice	$16,861	36
Internal Medicine	11,000	5
Surgery	14,000	3
Other	16,333	3

Table 12

PA Salary by Practice Setting

Practice Setting	Average Salary	N
Solo	$16,833	18
Partnership	17,800	10
Group - Single Specialty	15,000	6
Group - Multi-specialty	19,250	3
Institution	12,000	6

Table 13

Patient Acceptance as Reported by Graduate PA's

Patient Behavior	PA Experience					
	Never		Sometimes		Frequently	
	N	%	N	%	N	%
Refuses PA Demands Physician	26	55.3	21	44.7	-	-
Initially Reluctant Accepts PA	13	28.3	26	56.5	7	15.2
Asks for PA	2	4.4	23	51.1	20	44.4

Program Evaluation

The need for a comprehensive, continuous, self-evaluation technique was discussed by the WSU/PA Program administration after the American Medical Association site visit in the Summer of 1975. Accreditation guidelines suggest a periodic update of evaluation procedures for self-improvement and as evidence of program efforts to establish program related research.

Initial planning sessions were held in the Fall of 1975 to determine the scope of the proposed study. Other study details were discussed between the evaluator and the Program Director. The advice of other staff members, university personnel and consultants was also incorporated into the planning process. The content of the evaluation is a result of the cooperative efforts of program administration, students, graduates, university personnel, PA national office staff members, and AMA accreditation team members.

Study Design

The evaluation study was designed to respond to the following set of objectives:

1. To determine whether the facilities, instructional resources, and degree offerings are meeting student needs.

2. To determine the effectiveness of criteria currently used for the selection of students for entry into the training program based on relevant demographic, educational and background characteristics.

3. To determine student perception of courses in the didactic (first year) phase of training based on student and graduate course evaluations.

4. To determine student perception of courses in the clinical (second year) phase of training based on graduate course evaluations.

5. To determine the availability and scope of clinical rotations and preceptorships as measured by faculty and preceptor feedback.

6. To determine the employment patterns of WSU graduate PA's based on data gathered from the graduate survey.

7. To determine the perception of Kansas primary care physicians in regard to tasks considered to be within the PA's scope of work and to measure differences in the response of physician specialties represented in the physician survey.

In order to respond to these objectives, a large amount of information had to be collected and analyzed. It was necessary to provide a systematic model for organizing the information as it was collected. The model, as detailed in Chapter Two, was an input-process-product-environment model based on systems analysis components (See Figure 3). Summary description of the design is as follows:

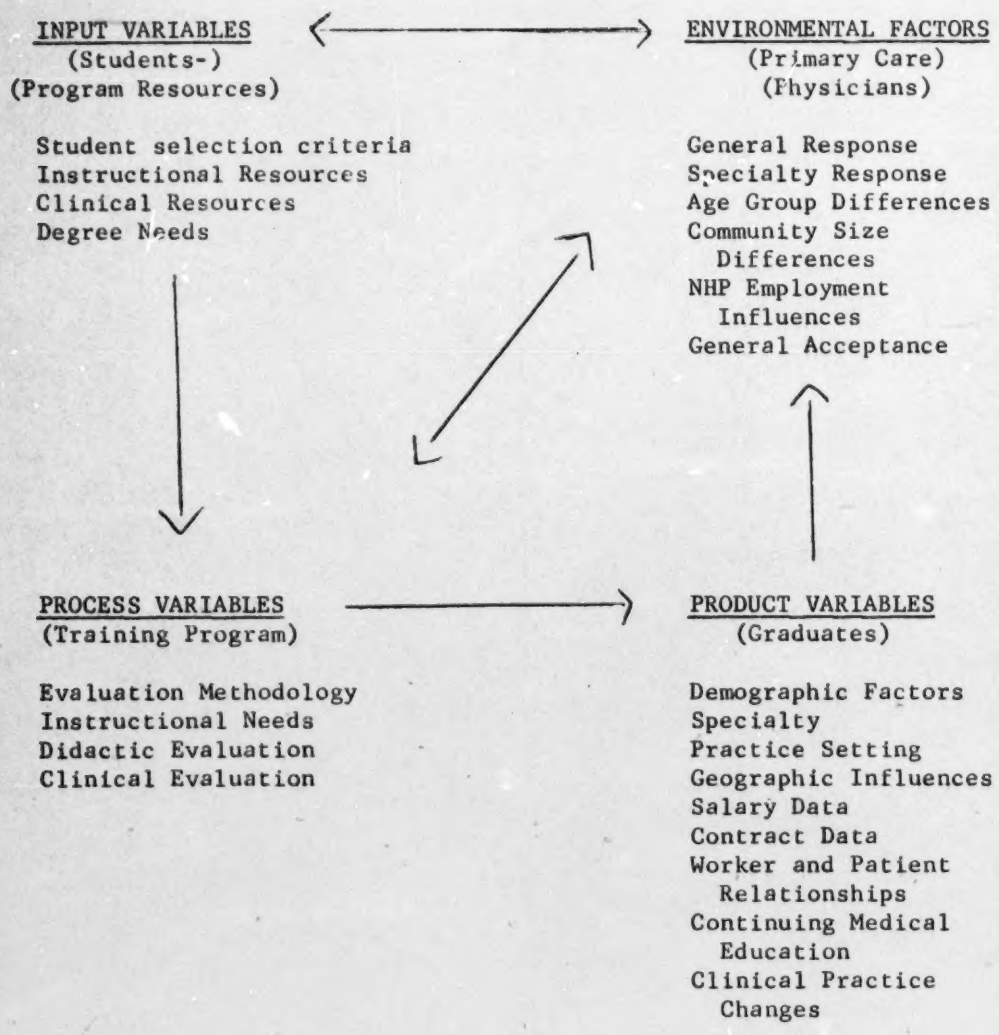

Figure 3. Evaluation Model

1. There are three interrelated, primary spheres of concern in the education of physician's assistants. As illustrated in Figure 3, they are input variables, process variables, and product variables. There are also, as presented in the diagram, certain environmental influences which affect the primary components of the system. Of particular concern is the acceptance of PA's by the primary care physician community.

2. Program input variables are those which enter into the selection of students for professional training: Their personal characteristics (age, sex, community background, race, etc.), education, and previous patient contact experience. Program resources are also considered input criteria for this evaluation.

3. Process variables for the study relate to the measurement of the training program. The success of the graduate PA is in part due to the subject matter adequacy of the didactic and clinical curriculum. In the present study, process variables are measured from the standpoint of student and graduate perception of course and instructor adequacy.

4. The product variables describe the employment patterns of PA's after graduation from the training program. Product components are dependent upon what the PA brings to the training program (input), the experience during training (process), and the acceptance and utilization of physicians after graduation (environmental factors).

5. Environmental variables may influence any component of the systems model. Of particular concern in this study is the acceptance of the role and task performance of the PA by Kansas primary care physicians. The attitudes of physicians affect the program at the input, process, and product stages of operation.

The most general statement of the intent of the evaluation is to provide date for examining the input, process, product, and environmental program influences with provision for program improvement. A second purpose of the evaluation is to provide the context for future analysis of variables affecting the training of PA's.

Design and Development of Instruments

Based on the consideration of the research objectives, the evaluator selected appropriate data gathering instruments. This process involved a survey of ther PA programs, discussions with the American Association of Physician's Assistants staff, a review of the literature and existing research information, and the consultation of the Evaluation Committee membership and other program faculty. The finalized instruments were the result of an analysis of the content to be covered, the drafting of the instrument, revision and editing by faculty and consultants, and approval of the instrument by the Evaluation Committee and the Program Director. A summary of the instruments and their relationship to the evaluation model is presented in Table 3. The instruments used in the study are described below;

Student interview questionnaire. The student interview questionnaire is an instrument which was developed before interviews for the third class of students. The purpose of the questionnaire was to collect and organize

Table 3

Source and System Identification for Evaluation Criteria

	Information Criteria	Source	System Reference
1.	Student Selection Criteria		
	a. Age, sex, race, personal characteristics	Interview Questionnaire	Input
	b. Geographical Background	Interview Questionnaire	Input
	c. Educational Background	Interview Questionnaire	Input
	d. Patient Contact Months	Interview Questionnaire	Input
2.	Student Performance Data		
	a. Didactic Performance	Program Records	Process
	b. Clinical Performance	Program Records	Process
3.	Training Program Evaluation		
	a. Student Course Evaluation	Didactic Evaluation	Process
	b. Graduate Course Evaluation	Graduate Survey	Process
	c. Clinical Rotation Evaluation	Preceptor Questionnaire	Process
4.	Graduate Feedback Data		
	a. Demographic Factors	Graduate Survey	Product
	b Employment Data	Graduate Survey	Product
	c. Worker and Patient Relationships	Graduate Survey	Product
	d. Continuing Medical Education	Graduate Survey	Product
	e. Training Program Feedback	Graduate Survey	Product
5.	Physician Task Information		
	a. General Response	Physician Task Survey	Environment
	b. Difference between specialties	Physician Task Survey	Environment
	c. Age Group Differences	Physician Task Survey	Environment
	d. Community Size Differences	Physician Task Survey	Environment
	e. NHP Employment Influences	Physician Task Survey	Environment
	f. General Acceptance	Physician Task Survey	Environment

data pertinent to the selection of students for the program. The interview questionnaire has become the main source of information regarding the background, education, and experience of students at the entry level and for this reason was utilized for this study. Since questionnaires were not available for the first two classes, program records were searched to complete the data for students in these classes with the appropriate information on file. The questionnaires are completed by the program staff, with applicant approval, during the scheduled interview period.

Student didactic course evaluation. The student didactic course evaluation form has been used by the program for the last four classes to assess student evaluation of first year courses and instructors. Because the course evaluation provides the most complete data available regarding didactic course evaluation, the Evaluation Committee and the Program Director approved its use in the current study. The evaluation form assesses student perception of the adequacy of course objectives and the quality of instruction provided by the program.

Student clinical course evaluation section of the graduate survey. Since only two student classes have completed the new evaluation forms for clinical rotations, the evaluator and the committee sought to assess student reaction to the clinical rotations by including appropriate questions in the graduate questionnaire. The new student clinical evaluations will provide future information for the development of rotation profiles.

Preceptor and rotation questionnaire. Program records contain a brief questionnaire which is mailed to physicians before students are assigned to them for rotations or preceptorship. The purpose of the questionnaire is not to evaluate the rotation, but to provide data for monitoring the assignment of students; thus, the data provides information on physician specialty, geographic location, patient volume, and number of students that can be placed on rotation.

Graduate Survey. The graduate survey was developed soon after the graduation of the first class and as a beginning project for the Evaluation Committee. The graduate monitoring devices of other programs were studied and objectives for the graduate follow-up were determined by the Evaluation Committee. The following areas were considered important components of the survey: (a) practice setting, (b) specialty, (c) office factors, (d) worker and patient relationships, (e) geographic location and community size, (f) contract and salary information, (g) didactic and clinical program feedback, and (h) graduate needs for continuing medical education. The survey is intended to collect both simple, descriptive data and data differentiated by such factors as age, sec, and practice location.

After careful review, the survey was sent to a group of five graduate PA's for their comments and suggestions. Finally, the survey was approved by both the Medical Director and Program Director as a valid instrument for collecting graduate employment data. The generalizability of the survey results was complete for the WSU graduate PA population since the total group was included in the study. Sampling errors were controlled with strict sampling procedures.

Physician survey. The physician survey is an instrument designed to assess the attitudes of physicians in the major primary care specialties in regard to the utilization of PA's. A sample of 42 tasks which PA's are trained to perform is detailed in the survey and physicians are asked to indicate whether the task should be performed by the PA.

The components of a physician survey which were considered essential by the Evaluation Committee were as follows: (a) a list of representative tasks which PA's are trained to perform in office, home, and hospital settings, and (b) additional questions which indicate support or non-support of physicians for the PA concept. The resulting questionnaire had the following elements:

1. General physician information: Age, specialty, size of community in which the physician's practice is located, office practice setting, and indication of current employment of an NHP are detailed.

2. PA tasks: Forty-two tasks commonly performed by physician's assistants with a five-item response format.

3. Questions assessing physician knowledge and acceptance of the PA concept: Eight questions which attempt to assess the knowledge and attitudes of physicians toward the PA concept.

Three measures of internal reliability were generated for the 42 task items. With a physician sample of 175, the Spearman-Brown Corrected Correlation Coefficient was .9769. A Kuder-Richardson Formula 20 Alpha Coefficient for dichotomous items was .9574 and the odd-even, split-half correlation coefficient for the items was .9548. Based on these figures, the reliability of the instrument was considered adequate for this study.

Content validity of the task survey was determined by the judgement of medical personnel. The survey was reviewed by two physicians who are familiar with the PA concept and by two PA's who have had medical experience and are now associated with the WSU/PA Program. It was the opinion of the four judges that the task survey was a representative and accurate sample of medical tasks which PA's commonly perform. The survey was finalized and approved by the Vice President for Health Education, the Program Medical Director, the Program Director, and the Evaluation Committee.

Collection of Data

The six instruments designed for data-gathering were administered either by mail or in person. Table 4 identifies the time, method of administration, and the appropriate respondents for each instrument. This section of the report provides a description of the methods used for data collection within the context of the evaluation design.

Input level data collection. Interviews of candidates for entry into the program take place in the spring of each year for the class which will begin training in the fall. Applicants are required to submit an application, references, transcripts of college work, and a written essay explaining why they are applying for the program. All applicants who provide the required material and meet the prerequisite requirements of the program are scheduled for apersonal interview with the faculty.

From the information in the applicant's file, the program staff completes the Student Interview Questionnaire which provides a profile of the applicant's background. During the question-and-answer period before the interviews, the applicants are asked to read and approve the

interview questionnaire. These forms are used as a reference point for the interview and are kept on file in the applicant's record. If the applicant reapplies, his/her questionnaire is updated.

Because the interview questionnaire provides entry level data about students in the program, it was used to provide the information necessary for the description and evaluation of input criteria. Since these forms

Table 4

Utilization of Study Instruments

	Instrument	Time	Method	Respondent
1.	Student Interview Questionnaire	Each Interview Session	In Person	Program Candidate
2.	Student Didactic Course Evaluation	Last Day of Course	In Person	Student
3.	Student Clinical Course Evaluation	With Graduate Survey	Mail	Graduate
4.	Preceptor Questionnaire	Before Student Enrollment	Mail	Preceptor
5.	Graduate Survey	Six Months After Graduation	Mail	Graduate
6.	Physician Task Survey	Fall of 1976	Mail	Primary Care Physician Sample

were not used for the interviews of the first class, the information for most of these students was researched from student records.

Process level data collection. At the beginning of the didactic year students are provided a packet of materials which includes evaluation forms for each didactic course. After each course is completed, the students are asked to evaluate the course objectives and instruction. In order to insure anonymity, the unsigned forms are collected by a student and returned to the faculty. All of the students responses are summarized in a course evaluation profile. Because course objectives are not included in this study, only the instruction section and comments were collected from the summary sheets.

New evaluation feedback forms for student evaluation of clinical rotations have been used with only one class of students and thus do not provide sufficient data for analysis. For this reason, clinical course evaluation was collected from questions on the graduate questionnaire. Although responses of students and graduates may differ, the graduate evaluation of clinical training offers theperspective of a clinical looking back on his/her own clinical experiences as a student. Collection of data for the graduate survey is detailed in the next section.

The preceptor and rotation questionnaire is used for scheduling and record-keeping purposes rather than for evaluation. When physicians agree to train PA students in their office, the following procedure is followed: (a) Site visitation by the Clinical Coordinator, (b) approval of the training arrangement by the Program Director, (c) a rotation questionnaire is mailed to the physician, and (d) upon receipt of the questionnaire a student is scheduled for training. The rotation questionnaire provides a profile of the physician and the practice setting.

Product level data collection. Graduate surveys were mailed to all program graduates six months after graduation. Graduates of the first two classes were included in the study although they were sampled at different times.

The survey was mailed to the graduate with an explanatory cover letter. After a period of three weeks, a follow-up letter was mailed to those failing to respond to the first request. If there was still no response after three weeks, the graduate was contacted by phone and asked to return the survey. The resulting response rate for the survey was 91.32%. Six months was determined by the Evaluation Committee to be an appropriate length of time for graduates to gain insight into the operations of the employing physician's practice, develop an awareness of cultural and socio-economic factors influencing the community, and become familiar with the impact of their own employment.

Environment level data collection. The physician survey was prepared in a four page format. The first page detailed the demographic data needed for analysis and presented instructions for understanding the Likert-type response scale used in the task portion of the survey. Respondents were asked to answer all items in the survey.

A cover letter written by the WSU Vice President for Health Education was mailed with the survey to the physician sample. A stamped, pre-addressed return envelope was included in the survey. Physicians were told that the survey represented an attempt to identify the role that Kansas physicians feel the PA should perform in the practice of medicine and that the resulting data would be used for refinement of the PA school curriculum.

Three weeks after the survey was mailed, a follow-up letter from Medical Director was sent to those physicians who had not responded to the first mailing. The survey was considered complete and data analysis was performed two months after the first mailing. From the 300 physicians sampled, 175 surveys were returned for a response rate of 58.33%.

Definition of System Boundaries

The description of the evaluation methodology is not complete without the consideration of the planning and decision-making strategies involved. Planning and design schedules are presented in Tables 5 and 6.

Table 5

Planning Schedule

Activity	Time	Personnel
1.0 AMA Self-evaluation study complete	July, 1975	Program Faculty
2.0 Evaluation planning staff meeting	August, 1975	Program Faculty
3.0 Evaluation Committee organized	August, 1975	Program Faculty
4.0 CHRP Dean review and approval	September, 1975	Dean
5.0 Evaluation goals established	November, 1975	Evaluation Committee
6.0 Literature survey complete	February, 1976	Evaluator
7.0 Survey of PA schools complete	April, 1976	Evaluator
8.0 Review of survey instruments complete	May, 1976	Evaluator
9.0 Approval of the Vice President for Health Education	July, 1976	Vice President

Table 6

Design Schedule

Activity	Time	Personnel
1. Evaluation model defined	June, 1976	Evaluator
2. Context objectives approved by Department Chairman	June, 1976	Department Chairman
3. Complete context objectives	June, 1976	Evaluation Committee
4. Input, process, and product objectives defined	August, 1976	Evaluation Committee
5. Department Chairman approval of design	September, 1976	Department Chairman

The implementation roles of the evaluator and decision-maker is identified in Table 7. Other aspects of the evaluation model are discussed in this section.

Decision-Making Authority

The following individuals and groups have immediate decision-making authority forprogram operations and have an active interest in the results of program evaluation:

1. The Vice President of Health Education: The highest ranking decision-maker in the University health science area. Approval for planning the evaluation was obtained from the Vice President. The Vice President provided support for the survey of Kansas primary care physicians. He reports directly to the University President.

2. The Dean of the College of Health Related Professions: During the planning stages of the evaluation, the acting Dean of the College was advised of the development plans for the proposed evaluation.

3. PA Program Medical Director: The Medical Director has approved the development of the evaluation model. He has also taken an active role as advisor during the design and implementation stages of the evaluation. The Medical Director reports directly to the Dean of the College.

4. PA Program Director: The Director, as department chairman, has the most immediate authority over program operations. The Director approved the evaluation and has been advised of needed resources. As a person in the position to make changes in the operating procedures of the program, the Director has the greatest need for evaluation information. The Director reports to the Dean of the College.

5. Program Faculty Members: Each faculty member has a degree of autonomy within his/her own professional role. Faculty members have the need for information respective of their own areas of expertise.

6. The American Medical Association: The AMA Council on Medical Education is in the position to make decisions about the accreditation of PA Programs. Information requirements are related to accreditation guidelines.

7. The U.S. Department of Health, Education, and Welfare: DHEW is a funding agency for the WSU Program and controls grant money for special projects. Information requirements are in the areas of budget justification and health manpower data.

8. The Kansas Legislature: Legislative requests for data facus on budget justification and evidence of success as determined by manpower data.

9. The Public: Consumers demand information about the competencies and skills, level of training, and the role of the PA.

Students, graduates and physicians were the main focus of this initial study. The first cycle of the evaluation measures the broad components of program operations which will further define succeeding evaluation cycles. The attitudes of physicians regarding the medical role of the PA were considered as critical for curriculum revision and employment assessment. After

Table 7

Implementation Roles

Activity	Evaluator Role	Decision-maker Role
Designate program funds	Develops and submits a proposed evaluation budget	Reviews and approves evaluation budget
Identify target populations	Determines appropriate sampling procedures. With decision-maker input, further defines and differentiates sample populations	Identifies populations. Approves sample population and procedures
Identify measuring instruments	Develops new, or identifies existing measuring instruments	Reviews instrumentation
Evaluation of measuring instruments	Determines reliability and validity of instruments	Final approval of instrumentation
Determine data collection techniques	Outline necessary methods of obtaining and recording data	Approve and provide necessary resources
Implement data collection procedures	Administer instruments or determine appropriate administration	Approve and provide necessary budget or personnel support
Data collection complete	Sets time limits and amount of data necessary for analysis	Review and advise
Analyze data	Performs necessary data analysis and statistical procedures	Review and advise
Determine appropriate report format	Review and advise	Determine scope of needed information and target audiences

the first trial of the evaluation is complete, efforts will be made to include other criteria (course objectives, for example) in later studies.

Criteria which would compare the WSU Program with other PA programs was not included in this study. The review of literature has established the general range of studies within the profession. True comparative data are difficult, if not impossible, to obtain, because national groups which collect such data will not make their findings public.

Constraints

The following constraints were identified in addition to those already listed previously in the limitations section of this study.

1. Five hundred dollars was allocated to the evaluation in the following categories: (a) $200.00 for computer services. (b) $200.00 for postage, and (c) $100.00 for supplies.

2. The Program Director decided against the employment of an external evaluator and arranged staff responsibilities so that the Assistant Program Director could assume the role of evaluator.

3. The adequacy of program records can present data gathering problems. An important aspect of an evaluation is to establish program records which will provide more complete data for future evaluation.

4. Staffing limitations determined the number of hours which could be devoted to the evaluation.

5. Although a review of the literature exposes faculty members to research in the field, efforts in this regard were limited by the lack of models for allied health evaluation. A review of the literature and a survey of other PA programs brought little information.

The Assistant Program Director was assigned to the role of evaluator. This decision was made by the Program Director for the purpose of updating AMA accreditation recommendations and because a continuous evaluation plan was desirable for program improvement. Another major factor in the appointment of the Assistant Director to the position of evaluator was his background in the field of education.

The following faculty positions were assigned to an active role on the Evaluation Committee:

1. Medical Director (Medical Advisor)
2. Program Director (Committee Chairman)
3. Clinical Coordinator (Clinical Advisor)
4. Program Coordinator (Advisor)
5. Assistant Program Director (Evaluator)
6. One student representative (Advisor)

The Dean of the College of Health Related Professions and the Vice President for Health Education at Wichita State University were asked to participate in an advisory role.

APPENDIX A

DIDACTIC & CLINICAL CURRICULUM

PHYSICIAN'S ASSISTANT PROGRAM OF STUDY

Example of a Program Study for a student enrolled in the Physician's Assistant Program with a career goal as a primary care clinician.

University Core

Communications	(9 hrs.)	
General Education + Program Administration	(40 hrs.)	49 hrs.

Professional Physician's Assistant Curriculum, First Year

Dept.	Course #	Course	Credit Hours
		FALL	
Health Professions	388	Clinical Anatomy	3
Health Professions	390	Clinical Physiology	2
Health Professions	385	Health Care Team Concepts	1
Health Professions	421	Adv. Clinical Pharmacology	3
Health Professions	400	Clinical Pathophysiology	1
Physician's Assistant	211	Assessment and Management of the Integument	2
Physician's Assistant	212	Assessment and Management of the Cardiovascular System	2
Physician's Assistant	213	Assessment and Management of the Pulmonary System	2
		Reading Improvement	2
Electives			3
			21 hrs.

(Students are encouraged to sign up for needed core courses at night or special problems courses with Program faculty.)

INTERSESSION

Physician's Assistant	214	Assessment and Management of the Gastro-Intestinal System	2 hrs.

SPRING

Health Professions	389	Clinical Anatomy	3	
Health Professions	390	Clinical Physiology	1	
Health Professions	400	Clinical Pathophysiology	1	
Health Professions	422	App. Clinical Pharmacology	3	
Physician's Assistant	215	Assessment and Management of the Kidney	1	
Physician's Assistant	216	Assessment and Management of the Genito-Urinary System	2	
Physician's Assistant	217	Assessment and Management of the Veneral Disease	1	
Physician's Assistant	218	Assessment and Management of Obstetrics and Gynecology	2	
Physician's Assistant	219	Assessment and Management of the Eye	1	
Physician's Assistant	220	Assessment and Management of the Head and Neck	2	
Electives			3	20 hrs.

(Again, make good use of your electives)

SUMMER

Health Professions	390	Clinical Physiology	1	
Health Professions	400	Clinical Pathophysiology	1	
Health Professions	385	Health Care Team Concepts	1	
Physician's Assistant	221	Assessment and Management of the Nervous System	2	
Physician's Assistant	222	Assessment and Management of the Musculo-Skeletal System	2	
Physician's Assistant	223	Assessment and Management of the Endocrine System	2	9 hrs.
				(52 hrs.)

Physician's Assistant Clinical Tract, Second Year

Fall (20 hrs.)

Spring (20 hrs.)

Summer (6 hrs.)

REQUIRED

Health Professions	410	Clinical Rotation in Medical Inpatient Service	1-5	
Health Professions	413	Clinical Rotation in Obstetrics and Gynecology	1-5	
Health Professions	414	Clinical Rotation in Emergency Room	1-5	
Health Professions	418	Clinical Rotation in Family Practice	1-5	
or				
Health Professions	419	Clinical Rotation in Primary Care	1-5	20 hrs.

ELECTIVE

Health Professions	311	Clinical Rotation in Rehabilitation	1-4	
Health Professions	312	Clinical Rotation in Public Health	1-4	
Health Professions	313	Clinical Rotation in Dermatology	1-4	
Health Professions	412	Clinical Rotation in Surgery	1-5	
Health Professions	415	Clinical Rotation in Mental Health	1-5	
Health Professions	416	Clinical Rotation in Intermediate Level Health Care	1-5	
Health Professions	417	Clinical Rotation in Admitting and Personnel Health Care	1-5	10 hrs.

REQUIRED

Eight Weeks Preceptorship	6	6 hrs.
		(36 hrs.)
Minimum		125 hrs.

APPENDIX B

SAMPLE MODULE OBJECTIVE
(G-I System Objectives)

Objectives for
ASSESSMENT AND MANAGEMENT OF THE
GASTRO-INTESTINAL SYTEM

I. H P & E

A. The students will be able to match each of the following words with its correct definition:

1.	Dysphagia	1)	difficulty swallowing
2.	Reflux	2)	retrograde passage of gastro-intestinal tract secretions; used most of the time to describe reflux from the stomach up into the esophagus.
3.	Pyrosis	3)	"heart burn" or retrosternal burning
4.	Intractable	4)	unresponsive to treatment
5.	Melena	5)	black stool, usually reflecting the passage of blood
6.	Icterus	6)	yellow cast to the skin and conjunctiva
7.	Pruritus	7)	itching

B. The students will be able to list four gastrointestinal diseases which might be elicited in the patient's family history that would have practical application to the patient because they seem to be familial:

1. Peptic Ulcer
2. Gallstones
3. Cancer of the colon
4. Spastic colon or irritable bowel syndrome

C. Students will be able to list 6 characteristic historical features of each of the following:

1. Duodenal ulcer
   a. epigastric pain (dull rather than sharp)
   b. nocturnal occurence of pain
   c. relief by antacids
   d. pain precipitated by spice "hot" foods
   e. precipitation of pain by caffeine ingestion
   f. long periods of remission between attacks of pain
2. Chronic ulcerative colitis
   a. diarrhea consisting of bloody, mucoid, or pus discharges through the day and often waking the patient at night
   b. crampy lower abdominal pain with relief by defecation
   c. urgency often followed by passage of very small amount of stool
   d. response to a course of corticosteroid medication
3. Acute Hepatitis
   a. subtle onset of malaise, fever, and nausea associated with the development of dark urine
   b. light stools
   c. clinical jaundice with a yellow skin and yellow sclera
   d. tender liver on jarring of the body

e. history of blood tranfusion or other injection by needle
f. history of exposure of toxins such as carbontetrachloride of certain medications such as thorazine

D. Students will be able to list four out of six possible signs which would lead one to suspect cirrhosis.
1. Prominent abdominal ascitis
2. Red face due to telangiectesia
3. "Spider" nevi, face or upper extremities
4. Erythematous palms
5. Muscular wasting of the upper trunk and extremities
6. Presence of purpura and eccynmoses over the body

E. Students will be able to demonstrate to the instructor's satisfaction the bedside method of abdominal palpation of the following organs:
1. Enlarged liver
2. Enlarged spleen
3. Distended cecum
4. Aneurysm of the abdominal aorta

F. From a given list of laboratory studies students will be able to identify those studies which would be ordered to confirm the presence of and identify the source of anemia in a 45 year old white female. Correct answers follow:
1. Complete blood count
2. Red cell indices
3. Stool for occult blood
4. Pap smear
5. Reticulocyte count
6. x-rays of upper GI tract
7. x-ray of the colon
8. Endoscopy

G. Students will be able to list the organs which are normally palpable in a slender relaxed abdomen.
1. Aorta
2. Colon (cecum and sigmoid)
3. Possibly the right kidney

H. Students will be able to list two conditions which can be identified by the palpation of a distended gall bladder and indicate what physical findings differentiate between the two.
1. Carcinoma of the pancreas with obstructive jaundice
2. Acute cholecystitis due to cystic duct stone

I. Students will be able to list the following organs or entities which may be palpable per rectum in the male:
1. Prostate
2. Seminal vesicle
3. Thrombosed hemorrhoid
4. Rectal shelf (metastatic malignancy of the periotneum)
5. Peridiverticular abscess
6. Cancer of polyp of rectum

J. Students will be able to determine from a patient's interview whether the common duct has been opened at the time of prior gall-bladder surgery by eliciting the story of a tube leading from the upper abdominal incision to a bottle hanging from the patient's bed or belt.

K. Students will be able to plot on a given diagram the usual location (with radiation of pain indicated by arrows) of the pain associated with the following entities:
   1. Gallstone colic - right subcostal with radiation to right scapula
   2. Renal Colic - flank pain radiating around to the appropriate lumbar region of the abdomen and then inferiorly to the genitalia, especially the testes in the male
   3. Gastrojejunal ulcer - mid or low epigastric pain with inferior radiation

L. Students will be able to list at least three terms commonly applied to regions of abdomen superior to the umbilicus.
   1. Epigastrium
   2. Hypochondrium
   3. Infracostal region or subcostal region
   4. Right upper quadrant
   5. Left upper quadrant
   6. Supraumbilical region

M. Students will name the characteristics in each diagnostic step or method which would be apt to indicate malignancy in the Gastro-Intestinal tract:
   1. Historical factors: gradual onset, progressive symptomology
   2. Examination: gastric mass present, supraclavicular nodes
   3. Upper G.I. Series: a filling defect especially on greater curvature
   4. Gastric acidity determination - achlohydria
   5. Gastroscopy: presence of a ragged, very nodular prominance with an ulcer superimposed, positive biopsy
   6. Cytology (cytologic examination): presence of the malignant cell on prepared slides

N. Students will recognize lactase deficiency syndrome by interpreting a relationship amoung the following conditions: Milk intolerance, bloating and flatulence, acid diarrhea.

II. PHYSIOLOGY

A. Students will be able to name the three basic functions of the gastro-intestinal tract and identify the organs that are importantly involved in each of the three functions:
   1. digestive or absorption - absorption, the most important organs are small intestine and the colon, and possible gallbladder
   2. transport of motility - organs most importantly involved are: esophagus, colon, small intestine, and possibly biliary tract and stomach
   3. secretion - the organs mostly involved are the stomach, pancreas, liver, and small intestine

B. Students will diagram the esophagus, stomach, small blowel, and colon
   1. Using the correct diagram the students will describe the mechanism of normal bowel function and the conditions causing constipation.
   2. Students will describe what happens to ingested food and liquid in the esophagus, stomach, small bowel and colon, including secretions and absorption.

C. Students will exhibit understanding of peristaltic wave as it is involved in the esophagus and stomach..

D. Students will be able to describe the normal motility function of the stomach and how it insures proper delivery of ingested food to the small intestine.

E. The student will support the concept of the importance of the small bowel to the overall functioning of the GI tract, be relating the absorption of small nutritive particles to total body sustenance, and the removal of residue once absorption has occurred.

F. The student will identify the enzymes in pancreatic secretions that participate in the digestion of the various food stuffs.

G. The student will correlate the digestive enzyme with the food component with which it is primarily invoved (e.g. amylase - carbohydrates, Lipase - fats, Trypsin - protein)

H. Students will identify the two main types of motor activity of the colon as segmenting contractions and propulsive or peristaltic contractions.

III. MEDICINE

A. Students will name the classical symptoms or state produced by dysfunction or failure of the following portions of the G.I. tract:
   1. Esophagus - dysphagia, or difficulty swallowing
   2. Stomach - pernicious anemia, or achlorhydria
   3. Jejunum - malabsorption, as seen in sprue
   4. Colon - diarrhea or constipation
   5. Bile Duct - jaundice

B. Students will be able to list a minimum of five disease that can be diagnosed by proctoscopy:
   1. hemorrhoids
   2. chronic ulcerative colitis
   3. cancer of rectum
   4. rectosigmoid polyp
   5. amebiosis of the colon

IV. SURGERY

A. Students will be able to identify and usual operation for relief of duodenal ulcer as vagotomy and removal of 1/3 to 1/2 of the distal stomach and explain the rationale for this surgical procedure.

B. Students will be able to list three complications of gastric surgery for duodenal ulcer, and explain the mechanism of each:

1. Dumping syndrome - entire content of ingested meal is immediately passed into the absorbing surface of the jejunum where, it if contains sufficient fluid and concentration to exert osmotic pressure, it sucks in fluid from the circulating blood. This distends the jejunum, causing abdominal discomfort, nausea, vomiting, and diarrhea - and may sufficiently deplete the volume of the circulating blood to cause transient perspiration, tachycardia, and faintness.
2. Hypoglycemia - a high carbohydrate meal, especially if simple sugar like glucose, passed quickly through the gastric remnant into the jejunum is absorbed quickly, producing an unusually high blood sugar level within a few minutes. This brings about an immediate response from the body's control mechanism for such blood levels with an outpouring of insulin, resulting in an equally low blood sugar within an hour or so. Thus in two hours or so after such a sweet meal the gastrectomy patient tends to be hypoglycemic.
3. Weight loss - patients who are slender before surgery tend to lose further weight after gastrectomy. The mechanism is most probably a tendency to malabsorption due to the rapid passage of food through the small bowel related to its rapid entry there. This may be associated with "dumping" already described above, or as a second mechanism for weight loss, the patient sometimes learns to limit the size of this ingested meal to avoid dumping and thus a lower caloric intake causes weight loss.
4. Recurrent ulcer - not commonly seen in these days of vagotomy, but can be due to inadequate control by the surgical procedure of the tendency to produce acid, i.e. if vagotomy is incomplete or the resection without vagotomy includes too little stomach removal - thus leaving the patient still able to secrete acid by the same mechanisms that did so prior to surgery.
5. A fifth complication is what is meant by "Alkaline reflux gastritis and esophagitis": Most commonly seen after vagotomy done for gastric ulcer, where the degree of acid hypersecretion is present, it represents severe inflammation of the gastric remnant and even the esophagus since the cardia competence is compromised by vagotomy, apparently produced by the reflux of bile from the duodenum. The most commonly seen in a Billroth I (gastroduodenostomy) anastomosis, it occurs with gastrojejunostomy also.

C. Students will be able to discuss the involvement of the stomach in pernicious anemia. Included in the discussion should be: proper red blood cell development through involvement of Vitamin B12 and "intrinsic factor"; the atrophic gastric mucosa, and treatment by intramuscular injection of Vitamin B12

D. Students will be able to outline in order the following steps in the diagnosis of a gastric ulcer that a practitioner must take to determine if it is benign or malignant:
1. History
2. Physical Exam
3. Stomach X-ray (barium meal)
4. Gastric analysis for acid
5 Gastroscopy
6. Cytologic study of gastric secretions

E. Students will be able to briefly explain in writing or orally the basic mechanism of heart burn and discuss the treatment.

F. Students will be able to list the three following entities which cause dysphagia and identify barium as the single most critical test by which they can be differentiated by laboratory, x-ray, or endoscopic studies:
1. Carcinoma of the cardia
2. Benign stricture of the esophagus
3. Achalasia

G. The student will discuss the basic mechanism of heart burn and its treatment by:
1. relating the reflux of gastric acid and the production of esophagitis
2. applying the concepts of treatment by the administration of antacids, and suggesting four of the following preventitives:
   a. not sleeping flat on back
   2. no smoking
   c. avoiding ingestions of food or drink causing hypersecretion of acid
   d. weight reduction
   e. limiting use of tight garments
   f. small evening meals so that stomach won't be full at night

H. Students will be able to list two drugs that may cuase each of the following:
1. Gastric hemorrhage
   a. aspirin
   b. indocin
   c. butazolidin
   d. steroids
2. Diarrhea
   a. maalox and certain other antacids
   b. milk of magnesia
   c. quinidine
   d. antibiotics (ex., Lincomycin)

3. Nausea
   a. Opiates (Morphine or codiene)
   b. anti-asthmatic drugs containing Aminophyline or its relatives
   c. digitalis
   d. broad spectrum antibiotics, e.g., tetracycline

I. The students will recognize and recall the importance of:
   1. sigmoidoscopy in diagnosis of carcinoma of the colon
   2. early diagnosis of carcinoma of the colon

J. The students will recognize nad recall the elements of Crohn's disease that makes it less satisfactory for surgical approach other than organic lesions of the bowel.

K. Students will identify the major complications of chronic ulcerative colitis.

L. Students will illustrate the major conditions which can result in malabsorption and recognize and recall the major tests and findings which may indicate presence of malabsorption.

M. Students will recognize and recall the most common psychosomatic disorders of the GI tract.

N. Students will recognize and recall the causes of diverticula disease of the colon.

O. The students will recognize and recall the sources of gas in the intestinal tract.

P. The students will be able to deduce the patterns of iatrogenic disease which may cause jaundice.

Q. The students will analyze the causes of acute intestinal obstruction.

R. The student will be able to recognize and recall the primary cancers of certain GI organs that can produce jaundice of a type amenable to surgical relief.

S. The student will be able to recognize and recall the two clinical entities most apt to be associated with internal fistula formation.

T. The student will be able to derive a prognosis and best plan of management for a teenager with multiple polyposis of the colon.

U. The student will be able to produce the structures and patterns which best display the major functions and dysfunctions of the colon.

APPENDIX C

CLINICAL ROTATIONS

CLINICAL ROTATIONS

Admitting & Personnel Health Care	V.A. Hospital	Topeka, Kansas
Dermatology	Chard, F., M.D.	Wichita, Kansas
E.N.T.	Firkins, R., M.D.	Wichita, Kansas
Emergency Room	Anderson, V.G., M.D.	Wichita, Kansas
	Saeed, M.A., M.D.	Wichita, Kansas
	Lawrence, L., P.A.	Chanute, Kansas
Family Practice	Baird, B.L., M.D.	Loveland, Colorado
	Cole, Ward, M.D.	Wellington, Kansas
	Evans, K., M.D.	Kingfisher, Oklahoma
	Gardner, B.L., M.D.	Harper, Kansas
	Forred, W., M.D.	Harper, Kansas
	Hopkins, B.M., M.D.	Scott City, Kansas
	Lies, B., M.D.	Colwich, Kansas
	McKerracher, R., M.D.	Derby, Kansas
	Ohmart, R., M.D.	Oakley, Kansas
	Stech, J., M.D.	Andale, Kansas
	Sutton, D.K., M.D.	Loveland, Colorado
	Thompson, S., M.D.	Wichita, Kansas
	Walker, W., M.D.	Sedan, Kansas
Gastro-interology	Monto, G., M.D.	Topeka, Kansas
Genito-urinary	Mellinger, G., M.D.	Wichita, Kansas
Intermediate Health	V.A. Hospital	Topeka, Kansas
Internal Medicine	V.A. Hospital	Wichita, Kansas
	V.A. Hospital	Topeka, Kansas
Medical Inpatient Service	V.A. Hospital	Leavenworth, Kansas
	V.A. Hospital	Topeka, Kansas
	V.A. Hospital	Wichita, Kansas
Mental Health	Atkinson, R., Ph.D.	Wichita, Kansas
	Drummond, C., M.D.	Wichita, Kansas
	Harvey, Rosemary, M.D.	Wichita, Kansas
	V.A. Hospital	Topeka, Kansas
Pediatrics	Guthrie, R., M.D.	Wichita, Kansas
	McGuire, W., M.D.	Wichita, Kansas

Primary Care	Allen, L., M.D.	Cuba, New Mexico
	Antrim, P., M.D.	Anthony, Kansas
	Baehm, A., M.D.	Great Bend, Kansas
	Berkeley, N., M.D.	Seneca, Kansas
	Cobb, L, M.D.	Mulvane, Kansas
	Dechairo, T., M.D.	Westmoreland, Kansas
	Duckworth, G., D.O.	Mound City, Kansas
	Grillot, F., M.D.	Wichita, Kansas
	Jacks, J.W., M.D.	Pratt, Kansas
	Justus, W., M.D.	Pleasanton, Kansas
	Kardatske, E.S., M.D.	Wichita, Kansas
	McKim, W.L. M.D.	Kinsley, Kansas
	Morgan, L.S., M.D.	Wichita, Kansas
	Moseley, O, M.D.	Osage Beach, Missouri
	Nelson, R., M.D.	Wichita, Kansas
	Phillips, D., M.D.	Cuba, New Mexico
	Peirson, W., M.D.	McPherson, Kansas
	Reinker, D., D.O.	Burlington, Kansas
	Slifer, J., D.O.	Florence, Kansas
	Whitaker, R., M.D.	Oberlin, Kansas
	Wolfenbarger, K., M.D.	Hoisington, Kansas
	Zabel, K., M.D.	Pittsburg, Kansas
	Zimmerman, J., M.D.	Lakin, Kansas
Public Health	Silverman, M., M.D.	Wichita, Kansas
Radiology	Boudreaux, V.J., M.D.	Halstead, Kansas
	Pedraza, H., M.D.	Halstead, Kansas
Rehabilitation	Siegel, Albert, M.D.	Wichita, Kansas
	Yang, J.H., M.D.	Wichita, Kansas
Surgery	Gardner, B.L., M.D.	Harper, Kansas
	Hart, D., M.D.	Wichita, Kansas
	Hopkins, B.M., M.D.	Scott City, Kansas
	V.A. Hospital	Wichita, Kansas
	V.A. Hospital	Topeka, Kansas

APPENDIX D

COMPOSITE PROFILES

COMPOSITE PROFILE
January 1973 Class

AGE

29 - Average
23 - Youngest
53 - Oldest

EDUCATION

1 - Masters Degree
1 - Bachelors Degree
2 - Over 60 college hours
5 - 60 college hours or less
3 - High School only

SEX

2 - Female
10 - Male

RACE

1 - Black
1 - Mexican American
10 - Caucasian

MONTHS OF DIRECT PATIENT CONTACT

84 - Average
240 - Highest
12 - Lowest

HEALTH RELATED PROFESSIONS REPRESENTED (former and present)

8 - Medical Corpsman
1 - Emergency Medical Technician
2 - Licensed Practical Nurse
1 - Laboratory Technician
1 - Oral Surgery Technician
1 - Psychological Counselor

COMPOSITE PROFILE
Fall 1973 Class

AGE

27 - Average
21 - Youngest
41 - Oldest

EDUCATION

1 - Masters Degree
11 - Bachelors Degree
5 - Over 60 college hours
5 - 60 college hours or less
1 - High School only

SEX

6 - Female
18 - Male

RACE

1 - Mexican American
1 - Puerto Rican
3 - Black
19 - Caucasian

MONTHS OF DIRECT PATIENT CONTACT

60 - Average
264 - Highest
0 - Lowest

HEALTH RELATED PROFESSIONS REPRESENTED (former and present)

5 - Medical Corpsman
5 - Nurse Aide
1 - Inhalation Therapy Technician
3 - Medical Technician
2 - Orderly
2 - Medical Assistant
1 - Licensed Practical Nurse
3 - Laboratory Technician
2 - Registered Nurse

COMPOSITE PROFILE
Fall 1974 Class

AGE

25 - Average
21 - Youngest
36 - Oldest

EDUCATION

13 - Bachelors Degree
7 - Over 60 college hours
11 - 60 college hours or less

SEX

9 - Female
15 - Male

RACE

1 - Puerto Rican
1 - Black
22 - Caucasian

MONTHS OF DIRECT PATIENT CONTACT

47 - Average
228 - Highest
3 - Lowest

HEALTH RELATED PROFESSIONS REPRESENTED (former and present)

9 - Medical Corspman
2 - Registered Nurse (degree)
2 - Medical Technologist
4 - Inhalation Therapist
1 - Emergency Medical Technician
1 - Occupational Therapist
1 - Toxicologist
11 - Nurse Aide, Orderly

COMPOSITE PROFILE
Fall 1975 Class

AGE

27 - Average
21 - Youngest
43 - Oldest

EDUCATION

1 - Masters Degree
9 - Baccalaureate Degree
4 - Associate Degree
5 - Over 60 college hours
5 - 60 College hours or less

SEX

7 - Female
17 - Male

RACE

1 - American Indian
23 - Caucasian

MONTHS OF DIRECT PATIENT CONTACT

46 - Average
100 - Highest
6 - Lowest

HEALTH RELATED PROFESSIONS REPRESENTED (former and present)

10 - Medical Coprsman
6 - Reistered Nurse (5 - diploma, 1 - degree)
1 - Physician Trained P.A.
2 - Emergency Medical Technician
1 - Certified Operating Room Technician
1 - Licensed Practical Nurse
1 - Bacteriologist
1 - Perfusion Technician
11 - Orderly, Surgical Technician, ER Technician, Bleeder, Hospital Volunteer, Dental Technician, Medical Assistant, Dietary Aide, Orthopedic Surgeon Aide
1 - X-ray Engineer

COMPOSITE PROFILE
Fall 1976 Class

AGE

26 - Average
20 - Youngest
43 - Oldest

EDUCATION

4 - Masters Degree
12 - Bachelors Degree
11 - Over 60 college hours
3 - 60 college hours or less

SEX

7 - Female
23 - Male

RACE

1 - Black
1 - Oriental
28 - Caucasian

MONTHS OF DIRECT PATIENT CONTACT

34 - Average
100 - Highest
0 - Lowest

HEALTH RELATED PROFESSIONS REPRESENTED (former and present)

4 - Medical Corpsman
6 - EMT or EMICT
2 - Certified Respiratory Therapist
3 - Medical Technologist
2 - Nuclear Medicine Technician
2 - Licensed Practical Nurse
4 - Orderly or Nurse Aide
3 - Respiratory Therapy Technician
1 - Dental Assistant
1 - Emergency Room Volunteer
1 - ER Technician
1 - Surgical Scrub Technician
1 - Research Statistician
1 - Social Worker in Crisis Intervention Unit
2 - Family Counselor
1 - School Counselor

COMPOSITE PROFILE

FALL 1977 CLASS

AGE

30.5 - Average
25 - Youngest
50 - Oldest

EDUCATION

1 - Doctorate (J.D.)
2 - Master's Degree
13 - Bachelor's Degree
10 - Greater than 60 college hours
4 - Less than 60 college hours

SEX

8 - Female
22 - Male

MONTHS OF DIRECT PATIENT CONTACT

61 - Average
0 - Least
168 - Greatest

HEALTH RELATED PROFESSIONS REPRESENTED (FORMER & PRESENT)

2 - Registered Nurse
1 - Licensed Practical Nurse
6 - Medical Corpsman
3 - Medical Technologist
3 - Lab Technician
8 - Emergency Medical Technician
1 - Radiologic Technician
1 - Respiratory Therapist
2 - Operating Room Technician
10 - Nursing Assistant, Orderly
1 - ENG Technician
1 - Nursing Student
1 - Psychiatric Aide